

Human Anatomy

Human anatomy:- is the science that studies the structure (Form, Construction, location) of the human body and its parts, systems and organs, as well as the relationship between the structure and function of them.

ana = up, tome = cutting
then converted to Anatomy

Ways and Methods of studying Anatomy

living anatomy:-

- inspection: "visual examination"
- palpation: "touching the body"
- percussion: "tapping on skin and listening to sounds"
- Auscultation: "listening to the natural sounds"
- Endoscopy: "examining of deep parts"
- Radiography: "using radiological images"

Cadaveric anatomy (by dissection)

Anatomy

↓
Systematic anatomy
studying the body
a system each time

↓
Topographic (regional)
anatomy
dividing the body into
regions and studying it
and all its components

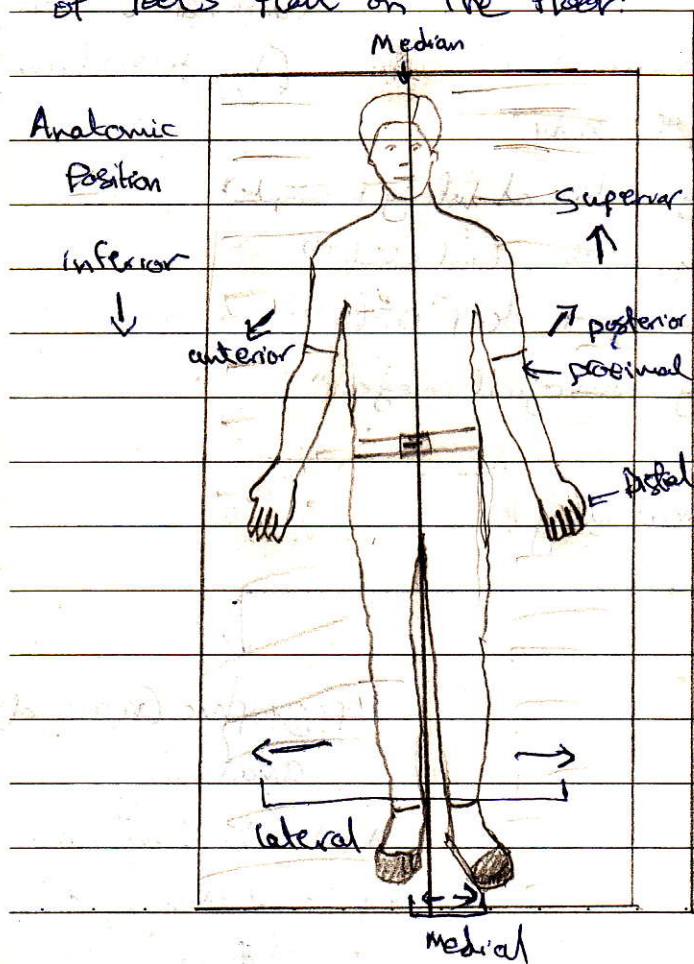
* **Anatomical position:** It is the standardized position of the human body to which we must refer all anatomical descriptions.

* The individual is standing up erect in front of the describer. The whole body is directed forward.

* The lower border of the mandible must be parallel to the floor.

* The upper limbs must be placed by the sides, palms of the hands facing forwards and thumbs adducted.

* The lower limbs must be placed together, heels in contact to each other, toes pointed forwards and sole of feet flat on the floor.



* **Anatomic Directional terms**

- Cranial or Superior
- Caudal or inferior
- Dorsal or posterior
- Ventral or anterior
- Median
- Medial
- Lateral

* **Directional terms in the limbs**

- proximal
- Distal

★ Planes of Section

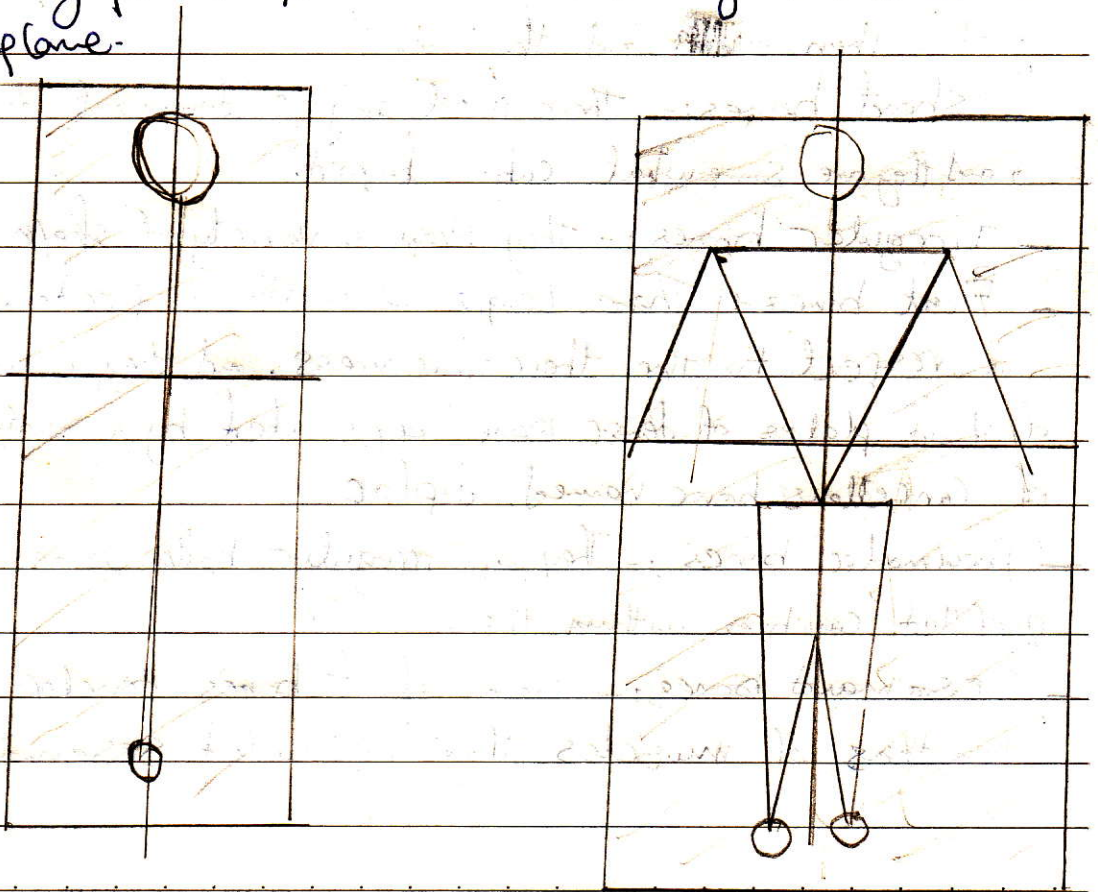
1- Frontal or Coronal :- dividing the body into anterior and posterior portions.

2- Horizontal or transverse :- is parallel to the floor, dividing the body to superior and inferior portions.

3- Midsagittal or median :- dividing the body into two equal lateral halves (right and left).

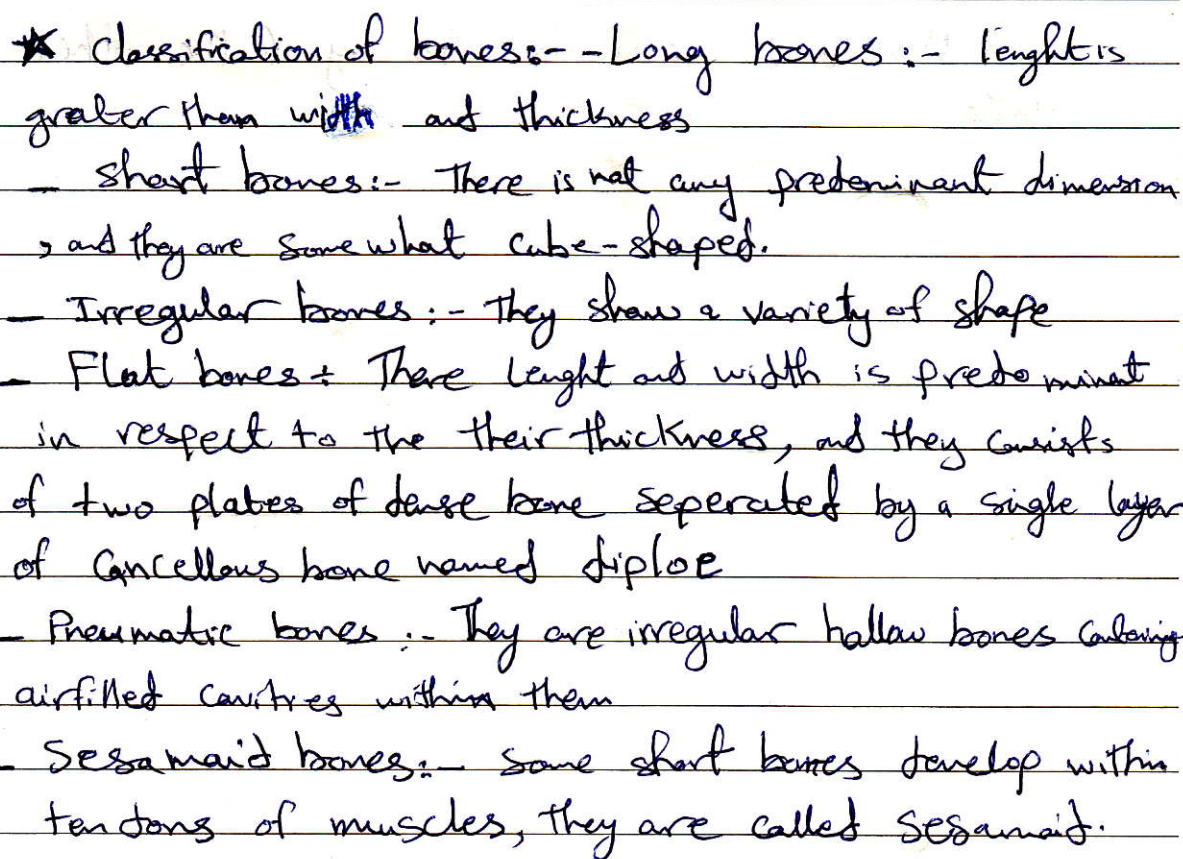
★ Parasagittal or paramedian :- any plane parallel to the midsagittal plane. (unequal portions).

* Every plane is perpendicular to any of the other plane.



A) Passive part: skeleton $\left[\begin{array}{l} \text{Bones} \\ \text{Joints} \end{array} \right.$

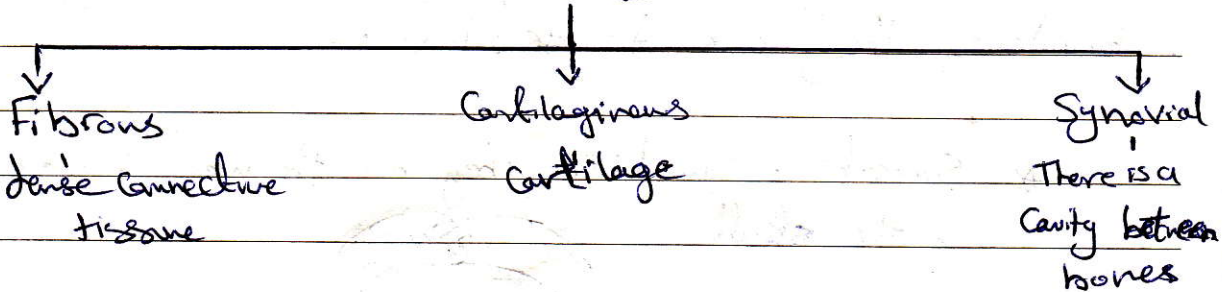
B) Active part: Muscles (and related structures)



* **Arthrology** :- an articulation or joint is defined as 'a junction between two or more bones'. They are sites of the skeleton possessing less rigidity (hardness) than the rest of the bony framework itself and their functions :-

- 1) Axes (pivot) of movements :-
- 2) Cushioning (softening) of blows or forces :-
- 3) Site of growth.

* **Classification of Joints** :-



* Fibrous and Cartilaginous joints are established by continuity of the articulating bones through the intervening tissue.

* Synovial joints are established by contiguity, because "cavity separates the articulating bones".

* **Fibrous Joints** :-

- **Syndesmosis** :- membranes or ligaments between the articulating bones

- Gomphosis:- it is an special joint established between the roots of the teeth and their corresponding alveolar sockets (alveoli) by the periodontal ligament (PDL) whose fibers attach to the Cementum of the tooth root and to the alveolar bone proper.

3- Sutures:- they are established between flat-shaped bones of the skull. A thin layer of fibrous connective tissue joints the borders of the articulating bones. According to the shape of the articulating borders, they are divided into:-

* Serrate: saw like, they are the most common in the skull



* Plane: flat, straight junction. They are found mostly between facial bones

* Squamous: bevel edge borders

* Cartilaginous joints: An intervening pad of Cartilage joins the bones, These bones usually derive from endochondral ossification. There may be a slight movement at the joint. They are classified according to the type of interposed cartilage:-

1- Synchondrosis:- They are primary cartilaginous (hyaline cartilage) and temporary joints (ossify or fuse during life)

2. Symphysis: They are secondary cartilaginous (fibrocartilage) and most of them are permanent joints

* Fibrous and cartilaginous joints are usually replaced by bone during life, becoming synostosis. That is due to cessation of local growth. This is why they are considered ("temporary joints")